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#### (54) Title: FORMATION, PROCESSING, TRANSPORTATION AND STORAGE OF HYDRATES

#### (57) Abstract

The present invention relates to economically advantageous methods of forming, processing, transporting and storing fluids, especially natural gas in the form of solid crystalline gas hydrates. It has been found that fluid can be removed from a mixture of hydrate, liquid and optionally gas using a two stage fluid separation process in which a more efficient, but generally more expensive, fluid removing efficiency separation service is used for the second stage. A number of separation devices are also disclosed. A device for effectively and economically cooling substantially dry hydrate is also disclosed, as is a method for economically storing and transporting hydrate.

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Inte ial Application No PCT/GB 00/00942

#### PCT/GB 00/00942 A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C07C7/152 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07C Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) WPI Data, PAJ, EPO-Internal C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. WO 93 01153 A (GUDMUNDSSON) Α 1,4 21 January 1993 (1993-01-21) page 10; claim 1; figure 3 PATENT ABSTRACTS OF JAPAN Α 12, 13, 15 vol. 15, no. 325, 19 August 1991 (1991-08-19) & JP 03 122497 A (NIPPON DENSO CO), 24 May 1991 (1991-05-24) abstract Α PATENT ABSTRACTS OF JAPAN 22 vol. 9, no. 91, 19 April 1985 (1985-04-19) & JP 59 225127 A (TOKYO GAS KK), 18 December 1984 (1984-12-18) abstract Further documents are listed in the continuation of box C. X Patent family members are listed in annex. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not considered to be of particular relevance cited to understand the principle or theory underlying the "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled "O" document referring to an oral disclosure, use, exhibition or other means in the art. "P" document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 24 July 2000 28/07/2000 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Bertram, H Fax: (+31-70) 340-3016

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